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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,018	02/11/2004	Jingsheng Chen	17184-002001 / E.20040013	2232

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EXAMINER	
JOLLEY, KIRSTEN	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/777,018	CHEN ET AL.	
	Examiner	Art Unit	
	Kirsten C. Jolley	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,9,10,12-15 and 34-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,9,10,12-15,34,37-42 and 45-48* is/are rejected.

7)☒ Claim(s) *7,8,35,36,43 and 44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. The claim objection and 35 USC 112, 2nd paragraph rejections have been withdrawn in response to Applicant's amendments to the claims.

2. Applicant's arguments filed May 15, 2006 have been fully considered.

The 35 USC 102(e) and 103(a) rejections of claims 34 and 38-41 over Shimizu et al. have been withdrawn in response to Applicant's arguments that the magnetic nanocrystals and non-magnetic material are located in different layers formed sequentially in Shimizu et al., and therefore Shimizu does not teach mixing the magnetic nanoclusters with a non-magnetic material. Upon reconsideration of the reference, the Examiner agrees that the alternate sputtering steps form multiple, distinct layers.

With respect to the 35 USC 102(e) rejections of claims 42 and 45 over Shimizu et al., Applicant argues that at the time the data is written on a magnetic recording medium, the magnetic nanoclusters have already been deposited on the substrate of the magnetic recording medium, and thus a magnetic field is not used when nanoclusters are deposited on a substrate. Applicant states that, by contrast, claim 42 requires a magnetic field be used *when* magnetic nanoclusters are deposited on a substrate (i.e., upon deposition). The Examiner disagrees that the phrase "upon deposition" requires that a magnetic field is used during or when deposition occurs. (The term "upon" is defined as "on" in Merriam-Webster's Collegiate Dictionary, Tenth Edition, which does not help to clarify what is meant/required by the phrase "upon deposition.") The

Examiner has broadly interpreted the phrase "upon deposition" to mean at the time of deposition or thereafter, or once deposition has occurred. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). See also *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process."). Applicant is invited to amend the claims to clearly set forth that the magnetic field controls orientation of the magnetic particles *during deposition* in order to overcome the prior art of Shimizu et al.

With respect to the 35 USC 102(b) rejections of claims 1, 9, and 10 over Ryonai et al., Applicant argues that claim 1 requires heating the magnetic nanoclusters before the crystallizing and depositing steps. The Examiner disagrees. There is nothing in claim 1 that requires an order of the claimed steps, or specifically heating before crystallizing and depositing.

With respect to the 35 USC 102(b) rejections of claims 34 and 37 over Ryonai et al., Applicant argues that a non-magnetic material and magnetic material are clearly included in different layers, and in order for the thin films to be formed separately the reference does not disclose mixing a non-magnetic material and a magnetic material. The Examiner disagrees.

Ryonai et al. teaches that the magnetic clusters and non-magnetic material are in the same layer (magnetic layer 3 in Figure 2), formed by simultaneously sputtering a magnetic substance and a non-magnetic substance. The Examiner mistakenly cited col. 4, lines 13-22, however intended to cite col. 4, lines 3-22. This passage, as well as the rest of columns 3-5, disclose simultaneous sputtering of magnetic and non-magnetic materials, resulting in magnetic clusters separated by non-magnetic material. Such a process meets the limitation of "mixing magnetic nanoclusters with a non-magnetic material."

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 12, 42 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimizu et al. (US 2003/0091868).

Claims 42 and 45 remain rejected for the reasons set forth in the prior Office action, as well as for the reasons discussed above in section 2.

Claims 1 and 12 are now rejected under 35 USC 102(e). Shimizu et al. does not specifically teach that the magnetic nanoclusters in its soft magnetic undercoat film 2 (referred to in paragraphs [0165] and [0168]-[0170]) are generated in the gas phase. However Shimizu et al. teaches that the soft magnetic undercoat film 2 is formed by sputtering (paragraph [0132]). It is

the Examiner's position that some clusters of magnetic material would necessarily be formed in the gas phase during sputtering (which takes place in a gas phase) because some crystals would collide during transport from the target to the substrate -- complete separation of all crystals would not be possible. Further Shimizu et al. teaches heating the cluster-containing film in paragraph [0142]. As discussed above in section 2, there is nothing in independent claim 1 that requires a particular order of the claimed process steps. Claim 12 is discussed for the same reason discussed above with respect to independent claim 42.

5. Claims 1, 9-10, 34, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Ryonai et al. (US 6,242,085).

The claims remain rejected for the same reasons discussed in the prior Office action, as well as for the reasons discussed above in section 2.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 13-15 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 2003/0091868).

The claims remain rejected for the same reasons discussed in the prior Office action, as well as for the reasons discussed above in section 2.

8. Claims 12-15, 38-42, and 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryonai et al. as applied to claims 1 and 34 above, and further in view of Shimizu et al.

The claims remain rejected for the same reasons discussed in the prior Office action, as well as for the reasons discussed above in section 2.

Allowable Subject Matter

9. Claims 7-8, 35-36, and 43-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims are allowable over the prior art for the reasons discussed in the previous Office action.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

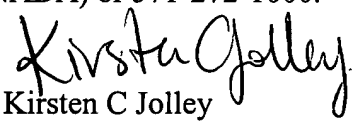
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kirsten C Jolley
Primary Examiner
Art Unit 1762

kcj